V. ENVIRONMENTAL IMPACT ANALYSIS
G. WATER QUALITY

This section is based on the Surface Water Quality Study prepared by Kimley-Horn and Associates, Inc. and the Overview of Regional Groundwater and Surface Water Conditions in the Vicinity of Boeing Realty Corporation's Former C-1 Facility provided by Hargis + Associates, both of which are included in Appendices N and O of this EIR, respectively. This section addresses surface water quality and groundwater resources in the project area. Issues associated with existing groundwater contamination in the project vicinity are discussed in Section V.E, Hazards and Hazardous Materials, of this EIR. In addition, refer to Section V.F., Hydrology, of this EIR for further discussion of drainage issues.

1. ENVIRONMENTAL SETTING

a. Existing Conditions

(1) Surface Water Resources

The PacifiCenter site is located within the Los Angeles-San Gabriel Hydrologic Unit, as determined by the California Regional Water Quality Control Board (RWQCB) for planning purposes. This hydrologic unit covers most of Los Angeles County and drains a 1,608-square mile area. The Los Angeles River, San Gabriel River, and Ballona Creek are the major drainage systems in this area.[187] The Los Angeles and San Gabriel Rivers are located approximately 2.5 miles west and 3 miles east from the project site, respectively. Both rivers run in a north-south direction and drain into the Pacific Ocean.

There are no surface water bodies or wetlands located on the project site.[188] The primary surface water bodies in the vicinity are lakes associated with the Lakewood

[187] *California Regional Water Quality Control Board, Los Angeles Region (4), Water Quality Control Plan, Los Angeles Region, June 1994.*

[188] *According to the U.S. Department of the Interior Fish and Wildlife Service National Wetlands Inventory, wetlands are lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water.*

Country Club and wetlands within flood control channels.[189] Although none of these surface water bodies have significant domestic or industrial value, they have been included in the U.S. Department of the Interior Fish and Wildlife Service (DOI-FWS) National Wetlands Inventory. Located approximately 400 feet north, Bouton Lake and two other sites within the Lakewood Golf Course are the closest surface water bodies to the project site.[190]

(a) Surface Water Quality

Surface water quality can be affected by a number of variables, which include land use, hydrology, meteorology, geology, and soils. Land uses may affect surface water quality based on the associated activities. As an example, office buildings generate small amounts of exterior pollutants, and surface parking lots have deposits of oil, gasoline, and other pollutants. These pollutants could be washed away by runoff. Meteorology may affect surface water quality through the quantity and intensity of storm events, which determine to what extent pollutants are washed away by runoff. Geology and soils may affect surface water quality in that they determine infiltration and runoff velocity. The more infiltration of runoff into the soil, and slower the runoff velocity, the less ability the runoff has to carry sediments and pollutants.

The project site is located within the Los Angeles River Watershed. Since the watershed is highly urbanized, urban runoff and illegal dumping are major contributors to impaired water quality in the Los Angeles River and tributaries.[191] Primary sources of storm water pollution in urban areas typically include automobiles and activities associated with automobile use, housekeeping and landscaping practices, industrial activities, construction, non-storm water connections to the drainage system, and accidental spills. Common pollutant sources and the pollutants that are generated from these sources are listed in Table 24 on page 410. Pollutant concentrations in urban runoff are extremely variable, and are dependent on source strength, storm intensity, runoff volume, and elapsed time since the previous storm event.

[189] *Lakes within the nearby golf courses are designated as wetlands of the Palustrine System on the U.S. Department of the Interior Fish and Wildlife Service National Wetlands Inventory. The Palustrine System contains most of the shallow freshwater wetlands in the United States.*

[190] *Overview of Regional Groundwater and Surface Water Conditions in the Vicinity of Boeing Realty Corporation's Former C-1 Facility, Hargis + Associates, Inc., May 2003.*

[191] *California Regional Water Quality Control Board, Los Angeles Region (4), Water Quality Control Plan, Los Angeles Region, June 1994.*

Table 24

COMMON SOURCES OF POLLUTANTS IN URBAN RUNOFF

Pollutant	Automobile/ Atmospheric Deposit	Urban Housekeeping/ Landscaping Practices	Industrial Activities	Construction Activities	Non-Storm Water Connections	Accidental Spills
Sediments	X	X	X	X		
Nutrients	X	X	X	X	X	X
Bacteria and Viruses		X		X	X	X
Oxygen Demanding Substances		X	X	X	X	X
Oil and Grease	X	X	X	X	X	X
Anti-Freeze	X	X		X	X	X
Hydraulic Fluids	X	X	X	X	X	X
Cleaners and Solvents	X	X		X	X	X
Heavy Metals	X	X	X	X	X	X
Chromium	X	X	X			
Copper	X	X	X			
Lead	X	X	X			
Zinc	X	X	X			
Iron	X		X			
Cadmium	X		X			
Nickel	X		X			
Manganese	X		X			
Paint		X		X	X	X
Wood Preservatives		X		X	X	X
Fuels	X		X	X	X	X
PCBs	X				X	X
Pesticides	X	X	X	X	X	X
Herbicides	X		X	X	X	X
Floatables [a]		X	X	X		X

[a] *Floatables in storm water are pollutants that contain significant amounts of heavy metals, pesticides, and bacteria.*

Source: Kimley-Horn and Associates, Inc., December 2003.

As shown in Figure 46 on page 394 (Section V.F., Hydrology), the project site is located within and downstream of a 1,521-acre (2.4-square mile) watershed, which is

within the southern portion of the Los Angeles River Watershed. The 1,521-acre watershed is primarily developed with impervious surfaces, with the exception of the Lakewood Country Club Golf Course, which drains through the storm drain system through the project site. Potential sources of storm water pollution in the 1,521-acre watershed are consistent with the various sources identified in Table 24 on page 410.

A 531-acre sub-basin is contained within the eastern portion of the 1,521-acre watershed and encompasses the 261-acre project site, the 257-acre Lakewood Country Club Golf Course, and an additional 13 acres, including a portion of the Long Beach Airport and the adjacent streets of Carson Street and Lakewood Boulevard, as shown in Figure 46 on page 394 (Section V.F., Hydrology). The water quality of the runoff in this sub-basin is influenced primarily by activities within the golf course, paved surfaces within the project site, and a small area of residential uses to the north of Carson Street. Potential sources of storm water pollution for the 531-acre sub-basin would be primarily consistent with the industrial activities and urban housekeeping/landscaping practices identified in Table 24 on page 410.

Runoff from the PacifiCenter site itself consists primarily of surface runoff generated on-site, with almost no surface flows entering the site. Storm water runoff flows off the project site to the existing local storm drain system and is eventually discharged into the Long Beach Marina, Alamitos Bay, and the San Pedro Bay. Runoff from the project site is currently regulated under both a General Industrial Storm Water Permit and a National Pollution Discharge Elimination System (NPDES) Waste Discharge Permit (Permit Number 6116, issued on October 27, 1999). (A more detailed discussion of the General NPDES Permit for Industrial Activities is provided below). As part of this permit, a Storm Water Pollution Prevention Plan (SWPPP) outlining the project site's rainstorm response procedures has been prepared and filed with the Los Angeles Regional Water Quality Control Board (LARWQCB). Existing on-site industrial pollutants that could potentially enter the drainage system include fuel, solvents, coatings, and hazardous wastes that are stored temporarily in Building 47 prior to being shipped to disposal sites; fuel, solvents, coatings, hydraulic fluids, oils, grease from the flight ramp, ramp storage, wash rack, and structural test area; and sediments, nutrients, bacteria, oxygen demanding substances, oil and grease, heavy metals, pesticides and floatables from the Lakewood Country Club.

To reduce the risk of water quality impacts, and in accordance with the permits described above, the project site currently has an extensive system that is designed to intercept spills and contaminants before they enter the storm drain system. This system has been operational since 1999 and will continue to operate within the Boeing Enclave through project implementation until such time that operations within the Boeing Enclave may cease. As part of this on-site storm water response system, a series of capture pans

or manually operated inlet valves are located on each on-site catch basin to eliminate the possibility of pollutants discharging into the storm drain to the downstream storm drain system. In addition to the capture pans, the on-site storm water response system includes valves, pH sensors (to measure chemical changes in storm water), hydrocarbon sensors (to measure heavy metal presence in storm water), silt trenches and clarifiers located throughout the site.

As described in Section IV, Environmental Setting, and Section IV.E, Hazards, in accordance with an order from the LARWQCB, a soil and groundwater remediation program is underway for the project site. To provide for these remediation activities, including necessary demolition and grading activities, a SWPPP has been prepared in accordance with the State General NPDES Permit for Discharge of Water Associated with Construction Activity (discussed in more detail below). This SWPPP outlines in detail how the storm water pollution program will be implemented, identifies the individuals responsible for its implementation, and summarizes the pollution control practices and monitoring to be conducted at the site.

(2) Groundwater Resources

The PacifiCenter project site is located within the Los Angeles Coastal Plain, which is underlain by the Central Groundwater Basin. Underlying the project site and vicinity are sediments within the Central Groundwater Basin that extend to depths greater than 1,250 feet below ground surfaces forming a sequence of aquitards and aquifers.[192]

There are two types of systems within the Central Groundwater Basin, the shallow aquifer system associated with the Lakewood Formation and the deep aquifer system associated with the San Pedro formation. The shallow aquifer system includes the Artesia and Gage aquifers, which are not currently used as a water supply. The deep aquifer system includes the underlying Hollydale, Jefferson, Lynwood, Silverado, and Sunnyside aquifers, which are used for beneficial water supply purposes.

The hydrostratigraphic units of interest include the Bellflower aquitard, a deeper sand on the western portion of the project site, the Artesia aquifer on the eastern portion of the project site, the Gage aquifer, which is the first laterally continuous aquifer underlying

[192] *Aquitards are hydrogeologic units that are composed primarily of silt and clay sediments, and aquifers consist mostly of fine to coarse sand and gravel. Typically, the groundwater flows are slower and smaller amounts of groundwater are contained in aquitards than those of aquifers due to greater displacement by the smaller particle sizes of the sediments.*

the project site, and the deep aquifer system. The depth intervals of the aquifers and aquitards vary beneath the project site, as shown in Table 25 on page 414.

The hydrostratigraphic units of interest are briefly described as follows:[193]

- Bellflower Aquitard: This is where groundwater is first encountered beneath the project site. The Bellflower aquitard comprises the upper unit of the Lakewood Formation and is a mixture composed primarily of low permeability silts and clays, with lenses and layers of fine sand. The Bellflower aquitard is known to have relatively low hydraulic conductivities due to the predominant fine-grained nature of this unit. There are relatively coarse and fine zones within this aquitard.

- Deeper Sand: This is a zone located on the western portion of the project site. The deeper sand zone underlies a silt/clay stratum near the base of the Bellflower aquitard. It is unclear whether the deeper sand is part of this aquitard or a zone underlying the aquitard. Moving to the east beneath the center of the project site, the deeper sand zone appears to transition into a finer grained zone.

- Artesia Aquifer: The Artesia aquifer is a relatively sandy zone underlying the Bellflower aquitard on the eastern portion of the project site near Lakewood Boulevard. The Artesia aquifer gains thickness to the east of the project site. This aquifer is part of the shallow aquifer system, which is not currently used for water supply purposes in the vicinity of the project site.

- Unnamed Aquitard: This aquitard underlies the deeper sand on the western portion of the project site, the finer sediments in the center of the project site, and the Artesia aquifer on the eastern portion of the project site.

- Gage Aquifer: The Gage aquifer, which underlies the unnamed aquitard, is the first laterally continuous aquifer beneath the project site. The Gage aquifer is located at the base of the Lakewood Formation and is the lowest aquifer within the shallow aquifer system. Similar to the Artesia aquifer, the Gage Aquifer is not currently used for water supply purposes in the vicinity of the project site.

[193] *Ibid.*

Table 25

GENERAL CHARACTERIZATION OF THE AQUIFERS AND AQUITARDS BENEATH THE PROJECT SITE

Hydrogeologic Unit	Depth Below Ground Surface (feet)	
	East Side	West Side
Shallow Bellflower Aquitard	0 – 50	0 – 10
Middle Bellflower Aquitard	65 – 80	40 – 45
Deep Bellflower Aquitard	85 – 120	45 – 55
Deeper Sand	80 – 95	Does not appear to be present
Artesia Aquifer (shallow aquifer system)	125 – 164	Does not appear to be present
Unnamed Aquitard	164 – 201	110 – 136
Gage Aquifer (shallow aquifer system)	201 – 277	136 – 206
Unnamed Aquitard	277 – 290	206 – 250
Deep Aquifer System (aquifers and aquitards)	290 – 1,000+	250 – 1,000+

Source: Overview of Regional Groundwater and Surface Water Conditions in the Vicinity of Boeing Realty Corporation's Former C-1 Facility, Hargis + Associates, Inc., May 2003.

- Deep Aquifer System: Underlying the Gage aquifer is another aquitard, which, in turn, is underlain by the deeper aquifer system that is used for water supply in the vicinity of the project site. The uppermost aquifers in the deep aquifer system are in the San Pedro Formation.

Water supply wells in the project vicinity do not currently produce groundwater from the Bellflower aquitard, Artesia aquifer, or Gage aquifer due to low yields of groundwater available for municipal supply purposes. Groundwater production in the project vicinity is primarily from the deep regional aquifer system, which occurs below the Gage aquifer and includes the Hollydale, Jefferson, Lynwood, Silverado, and Sunnyside aquifers. The PacifiCenter site does not contain any water-supply wells; however, there are 10 active water supply wells within a one-mile radius of the project site. Currently, construction of two aquifer storage and recovery wells in the project vicinity is underway.[194]

Natural recharge of the shallow and semi-perched aquifers by percolation from the ground surface occurs throughout the Los Angeles Coastal Plain and by underflow from the recharge areas. However, such natural recharge has steadily decreased regionally as a result of urbanization and industrialization over the years, as well as channeling of the Los Angeles and San Gabriel Rivers. Artificial recharge programs have been developed to compensate for the loss of natural recharge areas and the heavy use of groundwater.[195]

[194] *Ibid.*

[195] *Tetra Tech, Inc., Boeing C-1 Long Beach Facility, Phase I ESA Report, February 2000.*

Historically, prior to the initiation of the remediation program, the PacifiCenter site was mostly developed and recharge occurred primarily on an estimated four acres of pervious landscaped surfaces. However, as part of the ongoing remediation program, buildings and paved areas have started to be removed, leaving a larger area of vacant land with pervious surfaces.

(a) Groundwater Quality

The general quality of groundwater within the Los Angeles Coastal Plain has been substantially degraded from background levels. The groundwater in the surrounding area has experienced seawater intrusion, which is currently under control in most areas. Groundwater in the lower aquifers of this basin is generally of good quality. However, the quality of groundwater in parts of the upper aquifers is degraded by organic and inorganic pollutants from a variety of sources, such as leaking tanks, leaking sewer lines, and illegal discharges.[196]

Specifically, as further discussed in Section V.E, Hazards and Hazardous Material, the groundwater in the Bellflower aquitard has been impacted by historic chemical releases associated with the former aircraft production efforts on the site. These releases do not extend beyond the Bellflower aquitard and confirmation sampling has confirmed that the remaining aquifers (deeper) have not been impacted. Pursuant to LARWQCB Order 95-048, Boeing is implementing a comprehensive and ongoing remediation program designed to remediate impacted groundwater using a variety of methods. In addition, a Risk Management Plan shall be developed by the Applicant to ensure the long term health and safety of employees and residents at PacifiCenter as it relates to impacted soil and groundwater.

b. Regulatory Framework

The following discussions present the regulatory and permitting processes that have been established to control the quality of water runoff from urban construction sites and summarize the applicable federal, state, regional, local, and other water quality regulatory requirements.

[196] *California Regional Water Quality Control Board, Los Angeles Region (4), Water Quality Control Plan, Los Angeles Region, June 1994.*

(1) Clean Water Act

In 1972, the Federal Water Pollution Control Act, also referred to as the Clean Water Act, was amended to provide that the discharge of pollutants to waters of the United States (e.g., rivers, streams, ponds, lakes, and ditches) from any point source is unlawful, unless a National Pollution Discharge Elimination System (NPDES) permit authorizes the discharge. In the state of California, the NPDES permit program is administered and implemented by the State Water Resource Control Board (SWRCB), in conjunction with its nine Regional Water Quality Control Boards (RWQCB).

The Clean Water Act was amended in 1987 requiring the United States Environmental Protection Agency (USEPA) to create specific requirements for storm water discharges. In response to the 1987 amendments to the Clean Water Act, Phase I of the USEPA NPDES Program required NPDES permits for: (1) Municipal Separate Storm Sewer Systems generally serving, or located in, incorporated cities with 100,000 or more people (referred to as MS4 permits or municipal permits); (2) eleven specific categories of industrial activity (including landfills); and (3) construction activity that disturbs more than five acres or greater of land. As of March 2003, Phase II of the NPDES Program extends the requirements for NPDES permits to numerous small municipal separate storm sewer systems, construction sites of one to five acres, and industrial facilities owned or operated by small municipal separate storm sewer systems, which were previously exempted from storm water permitting.

Section 402 (p) of the Clean Water Act mandates that the municipal permits must: (1) effectively prohibit the discharges of non-storm water to the Municipal Separate Storm Sewer Systems except under certain provisions; and (2) require controls to reduce pollutants in discharges from the Municipal Separate Storm Sewer Systems to the maximum extent practicable (MEP), including Best Management Practices (BMPs), control techniques, and system, design, and engineering methods.

(2) Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act of 1969, California Water Code § 13000 *et seq.,* established the principal State program for water quality control and authorizes the State Water Resources Control Board (SWRCB) to implement the provisions of the federal Clean Water Act. The Act divides the State into nine RWQCB areas. The PacifiCenter project site is located in Region 4, the Los Angeles RWQCB (LARWQCB) area. Each RWQCB implements and enforces provisions of the Porter-Cologne Act and the Clean Water Act subject to policy guidance and review by the SWRCB.

One of the functions of the RWQCB is to prepare and periodically update a Basin Plan. Each Basin Plan establishes the following: beneficial uses of water designated for each water body to be protected; water quality objectives for surface water and groundwater; and actions necessary to maintain these standards in order to control non-point and point sources of pollution in State waters. The "Water Quality Control Plan, Los Angeles Region," or "Basin Plan" in which the project site is located was approved in June 1994. Permits issued to control pollution (i.e., waste discharge requirements and NPDES permits) must implement Basin Plan requirements.

(3) Applicable National Pollutant Discharge Elimination System (NPDES) Permits

Pursuant to the regulatory program set forth above, the LARWQCB has jurisdiction over the following NPDES permits and other regulatory programs as it relates to the project and project site.

(a) Statewide General Construction Storm Water Permit

The General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit, 99-08-DWQ) is an NPDES permit that regulates dischargers whose projects disturb one or more acres of soil or whose projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres. Construction activity subject to this permit includes clearing, grading and disturbances to the ground such as stockpiling, or excavation but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility.

The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Program (SWPPP). The SWPPP is required to list Best Management Practices (BMPs) to protect storm water runoff quality. Additionally, the SWPPP is required to contain a visual monitoring program, a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs, and a sediment monitoring plan if the project site discharges directly to a water body listed on the Section 303(d) list[197] for sediment.

[197] *Section 303(d) of the Clean Water Act requires identification and listing of water-quality limited or "impaired" waterbodies where water quality standards and/or receiving water beneficial uses are not met. See U.S. Environmental Protection Agency, Clean Water Act, Impaired and Threatened Waters (Section 303(d)) Lists, June 5, 2003.*

(b) Industrial Storm Water Program

The Industrial Storm Water General Permit Order 97-03-DWQ (General Industrial Permit) is an NPDES permit that regulates discharges associated with ten broad categories of industrial activities. The General Industrial Permit requires the implementation of management measures that will achieve the performance standard of best available technology economically achievable and best conventional pollutant control technology. The General Industrial Permit also requires the development of a SWPPP and a monitoring plan. Through the SWPPP, sources of pollutants are to be identified and the means to manage the sources to reduce storm water pollution are described. The General Industrial Permit requires that an annual report be submitted each July 1.

(c) Municipal Permits and SUSMP Requirements

As indicated above, in accordance with the Clean Water Act, NPDES permits are also required for storm water discharges from municipal separate storm sewer systems (referred to as MS4 permits or municipal permits). The MS4 permits require the discharger to develop and implement a Storm Water Management Plan/Program with the goal of reducing the discharge of pollutants to the maximum extent practicable (MEP). MEP is the performance standard specified in Section 402(p) of the Clean Water Act. The storm water management programs specify what best management practices (BMPs) will be used to address certain program areas. The program areas include public education and outreach; illicit discharge detection and elimination; construction and post-construction; and good housekeeping for municipal operations. In general, medium and large municipalities are required to conduct chemical monitoring, though small municipalities are not.

A municipal storm water NPDES permit has been issued to Los Angeles County and 85 cities within the County including the City of Lakewood. As described below, the City of Long Beach has been issued its own NPDES permit (NPDES Permit No. 99-060; CAS004003/CI 8052) by the LARWQCB. Under more recent regulations adopted by the LARWQCB and set forth in these municipal NPDES permits, the LARWQCB set forth a Standard Urban Storm Water Mitigation Plan (SUSMP) that was developed to address storm water pollution from new development and redevelopment by the private sector. Jurisdictions in Los Angeles County are required to adopt the requirements set forth in the SUSMP into their own SUSMP. Implementation of a SUSMP is required during the operational life of the project to ensure that storm water pollution is addressed by incorporating BMPs in the design phase of development. This requirement provides for water quality design standards to ensure that storm water runoff is managed for water quality concerns in addition to flood protection and that pollutants carried by storm water are retained and not delivered to waterways. Project applicants for specified projects are

required to select source control and treatment control BMPs from the list approved by the LARWQCB and included in the SUSMP. In combination, these treatment control BMPs must be sufficiently designed and constructed to treat, infiltrate, or filter the first 0.75-inch of storm water runoff from a storm event.[198] The SUSMP provisions that are applicable to all land use categories include: (1) reducing peak storm water runoff discharge rates; (2) conserving natural areas; (3) minimizing storm water pollutants of concern; (4) protecting slopes and channels; (5) providing storm drain stenciling and signage; (6) properly designing outdoor material storage areas; (7) providing proof of ongoing BMP maintenance; and (8) designing standards for structural or treatment control BMPs.

City of Long Beach

The LARWQCB has issued the City of Long Beach its own NPDES permit (NPDES Permit No. 99-060; CAS004003/CI 8052). As part of its Report of Waste Discharge (ROWD) submitted for its NPDES permit, the City of Long Beach included among other programs, a storm water management program. In accordance with the objectives of the federal Clean Water Act and the State Porter-Cologne Water Quality Control Act, the Long Beach Storm Water Management Program (LBSWMP) contains several elements, practices and activities aimed at reducing or eliminating pollutants in storm water to the maximum extent practicable (MEP). Among these programs is a development planning and construction program. In accordance with this program as well as the requirements of the SUSMP mandated by the RWQCB, Chapter 18.95 of the Long Beach Municipal Code includes several requirements relating to development planning and construction. Included in these requirements are source control BMPs for projects such as gasoline stations and hillside projects. Additional requirements include treatment control BMPs and requirements regarding erosion control, peak runoff, and BMP maintenance for projects that include 10 or more home subdivisions, 100,000-square foot or more square foot commercial developments and projects located adjacent to or directly discharging to environmentally sensitive areas. Post-construction structural or treatment control BMPs designed to mitigate (infiltrate or treat) the volume of runoff produced from a 0.75-inch storm event prior to its discharge to a storm water conveyance system are also required for these specific projects. In addition, in accordance Chapter 18.95 of the Long Beach Municipal Code, construction projects are required to prepare a SWPPP that will incorporate construction site BMPs.

[198] *The requirement to treat, infiltrate or filter the first 0.75-inch of storm water is designed to capture the first flush runoff, which is generally associated with the highest pollutant concentrations but not pollutant load.*

City of Lakewood

As described above, the City of Lakewood applies the NPDES and SUSMP requirements of the County of Los Angeles to all new facilities being constructed within the City of Lakewood. Within the City of Lakewood, projects that fall into one of seven categories are identified in the Los Angeles County Permit as requiring SUSMP. These categories include:

- Single-family hillside residences;
- 100,000-square foot or more commercial developments;
- Automotive repair shops;
- Retail gasoline outlets;
- Restaurants;
- Home subdivisions with 10 to 99 units; and
- Home subdivisions with 100 or more housing units.

In 2002, the City of Lakewood adopted Ordinance 2002-7 related to the SUSMP requirements set forth by the LARWQCB. This ordinance amended the Municipal Code to include essential definitions, impose conditions on development approvals to require the implementation of BMPs and storm water construction measures, define violations, allow inspections, and enable enforcement.

2. ENVIRONMENTAL IMPACTS

a. Methodology

As indicated above, this analysis is based on the Surface Water Quality Study prepared by Kimley-Horn and Associates, Inc. and the Overview of Regional Groundwater and Surface Water Conditions in the Vicinity of Boeing Realty Corporation's Former C-1 Facility provided by Hargis + Associates, both of which are included in Appendices N and O of this EIR, respectively. The Overview of Regional Groundwater Quality was prepared based on information from the California Department of Water Resources, the California EPA, and data developed during the groundwater assessment conducted at the project site. The Surface Water Quality Study was prepared based on the review of documents and files from the LARWQCB, Boeing's Safety Health and Environmental Affairs Division, the USEPA, the Los Angeles County Flood Control District, and the Cities of Lakewood

and Long Beach Public Works Departments. The documents reviewed for this Study included NPDES permits on file at the LARWCQB, monitoring reports submitted to the LARWQCB by Boeing in compliance with NPDES permits, Basin Plans, surface water maps, regional and local soil contaminant distribution maps, and conceptual plans of the PacifiCenter project with proposed transportation improvements and surface drainage modifications.

To identify potential project impacts to surface water and groundwater quality, potential contaminant sources proposed as part of the project were also identified. Existing applicable regulations and proposed project features were identified that specifically address the potential contaminant sources. Where existing regulations did not adequately address potential contaminant sources, those sources were analyzed to determine the potential impact on the surface water and groundwater quality of the receiving bodies.

b. Thresholds of Significance

For the purposes of this analysis, surface water quality and groundwater quality impacts will be considered significant if:

(1) Surface Water

- Development of the proposed project degrades the surface water quality of receiving waters to levels below standards considered acceptable by the LARWQCB or other regulatory agencies or development of the proposed project violates waste discharge requirements;

- Activities associated with the proposed project impair the beneficial uses of the receiving waters;

(2) Groundwater

- Development of the proposed project degrades the groundwater quality to levels below standards considered acceptable by the LARWQCB or other regulatory agencies; or

- Development of the proposed project substantially depletes groundwater supplies or interferes substantially with groundwater recharge such that there

would be a net deficit in aquifer volume or a lowing of the local groundwater table level.

c. Project Features

The following project features are proposed as part of the project and supplement the Project Description presented in Chapter III of the EIR:

(1) Construction

- The proposed project will comply with NPDES regulations that will include the following:

  – As part of the project's mass grading and backbone infrastructure construction, a NPDES permit will be secured and a SWPPP will be developed and implemented during the construction period, as required by the permit. The SWPPP will include BMPs to reduce pollutant loading to storm water runoffs. Such BMPs may include but are not limited to silt fences, straw bale barriers, check dams, sand bag berms at catch basin inlets, hydroseeding and temporary sediment basins. Once the PacifiCenter mass grading and infrastructure is constructed, much of the graded site may remain vacant for a period of time. During that time frame, the erosion control features of the SWPPP will be maintained on those areas that are not developed.

  – The various separate development sites within the PacifiCenter will also be required to secure a separate NPDES construction permit and prepare a site specific SWPPP as they are developed. BMPs within the SWPPP may include but are not limited to check dams, straw bale barriers, inlet sediment traps, gravel and wire mesh filters for curb inlets, gravel and wire mesh filters for drop inlets, sand bag berms at catch basins, temporary drains and swales, silt fences and stabilized construction entrances and exits.

  – The PacifiCenter project would be required to implement erosion control measures during post-rough grading, including, but not limited to hydroseeding, Guar Soil Binders, straw mulch, geotextiles, plastic covers and erosion control blankets/mats, wood mulching, silt fencing desilting basins, sandbag barriers, storm drain inlet protection, and stabilized construction entrances and exits. The PacifiCenter project would maintain the erosion control measures until the individual developer purchases a

development site. Once a parcel is transferred to a specific developer, maintenance of the erosion control measures for that parcel will also be transferred to the developer.

– The proposed project will comply with the requirements of the short-term NPDES permits for discharge of groundwater to the storm drain during construction dewatering activities, if such dewatering is required.

(2) Operation

- In accordance with the Standard Urban Storm Water Mitigation Plan (SUSMP) requirements described above, the proposed project will include the following:

  – The storm water system will be designed to treat potential pollutants and runoff produced from a 0.75-inch storm event prior to its discharge to a storm water conveyance system.

  – Project-wide BMPs will be implemented that may include, but are not limited to, catch basin filters, prohibitive stenciling, and biofilters.

  – Individual development permanent BMPs may include, but are not limited to, catch basin filters, biofilters, prohibitive stenciling at on-site catch basins, grass pavers, and oil/water separators at on-site parking areas.

  – The project will comply with requirements regarding outdoor trash and storage areas and storm drain stenciling.

- In addtion, the following will also be implemented as part of the project:

  – The proposed project will include landscaped areas to reduce the amount of impervious surface area on the project site;

  – The storm treatment system facilities within the public right-of-way and dedicated open space will be constructed as part of the project-wide infrastructure development.

d. Analysis of Project Impacts

(1) Construction

Surface Water

During project construction, the Boeing storm water system will be dismantled as the PacifiCenter implements NPDES requirements consistent with the new uses of the project site. All areas will be continuously protected during construction. However, the Boeing storm water system will be maintained for the Boeing Enclave facility as long as that area is functioning as an aircraft manufacturing facility. Consequently, this will require the relocation of some of the monitoring equipment and isolation valves that are currently installed in the existing reinforced concrete box and other facilities.

Grading activities associated with project construction will temporarily increase the amount of suspended solids from surface flows derived from the project site during a storm event due to erosion of exposed soil. In addition, due to on-site watering activities utilized to reduce airborne dust (please refer to Section V.B., Air Quality, of this EIR), construction could contribute marginally to increased sediment loading of surface runoff during dry weather conditions. As indicated above, NPDES permits will be obtained during construction as part of the mass grading and backbone infrastructure, and as part of the specific development site construction activities. These permits will require that SWPPPs be developed and implemented. As described above, BMPs and erosion control measures will be included in the SWPPP. With implementation of NPDES and local regulations, proposed construction activities will not degrade the surface water quality of receiving waters to levels below standards considered acceptable by the LARWQCB or other regulatory agencies or impair the beneficial uses of the receiving waters. In addition, construction of the project will not result in a violation of any water quality standards or waste discharge requirements and will not otherwise substantially degrade water quality. Therefore, construction-related impacts to surface water quality will be less than significant.

During excavation and grading of the PacifiCenter site, contaminated soils could be exposed and/or disturbed. If contaminated soil is encountered during earth-moving activities, appropriate measures will be taken for the cleanup and/or disposal of the soil as set forth in Section V.E, Hazard and Hazardous Materials, of this EIR.

Groundwater

Construction activities on the PacifiCenter site could require excavation of up to 20 feet below ground surface during removal of existing foundations and during pile driving activities. Implementation of these construction activities could involve dewatering. In compliance with storm water regulations, a short-term NDPES permit will be obtained to ensure that any needed groundwater treatment will be completed prior to discharging the groundwater to the storm drain. Further, construction activities (including any associated dewatering) would be conducted in a manner that does not conflict with the separate and ongoing soil and groundwater remediation program and is consistent with the Risk Management Plan (RMP) that is designed to protect the health and safety of employees and residents of the project site. See Section V.E, Hazards and Hazardous Materials, for further information. Therefore, construction activities associated with the project will not degrade the groundwater quality to levels below standards considered acceptable by the LARWQCB or other regulatory agencies. In addition, these short-term activities will not substantially deplete groundwater supplies or interfere with groundwater recharge. As such, groundwater impacts during construction of the project will be less than significant.

(2) Operation

Surface Water

Operation of the proposed project will produce pollutants typically associated with urban uses, such as oil and grease, metals, fertilizers, pesticides, dirt from landscaped areas, and litter. Pollutants in this runoff have the potential to infiltrate pervious surfaces and affect groundwater quality. In addition, the Boeing Enclave facility will continue to operate for a number of years as the PacifiCenter is developed and will continue to generate fuel, solvents, coatings, hydraulic fluids and oils. As indicated above, this facility will continue to operate under the storm water monitoring program developed for its current NPDES wastewater discharge permit number 6116. The operation of the PacifiCenter project will not interfere with those requirements.

The proposed project will include landscaped areas that will significantly reduce the amount of impervious surface areas on the project site. Prior to recent demolition activities associated with remediation, the 261-acre site included approximately four acres of landscaping and 257 acres of paved surfaces. (After completion of demolition activities associated with the remediation program, much of the site will be comprised of bare disturbed land). The proposed project will include approximately 51 acres of open space and landscaped areas. This reduction in impervious area, relative to long-term historic conditions, will reduce peak storm water runoff discharge rates. Specifically, as discussed

in Section V.F., Hydrology, of this EIR, the 10-year storm event flow from the 261-acre project site prior to remediation was approximately 542 cubic feet per second (cfs). Relative to long-term operations on the site, implementation of the proposed project will reduce this 10-year storm event flow to 403 cfs, which will represent a net reduction of 139 cfs or 26 percent in storm water runoff. This decrease in runoff will reduce the proposed project's contribution of surface water runoff discharge to existing or planned storm water drainage systems or of additional sources of polluted runoff.

In addition, the constituents in the project's post-development runoff will be significantly less than recent and historic (i.e., pre-remediation) conditions due to the reduction in the industrial use of the PacifiCenter site and proposed enhanced storm water treatment system. As previously discussed, the Applicant and subsequent property owners will be required to comply with SUSMP requirements during the operational life of the project. Such requirements will include source control BMPs, treatment control BMPs, requirements regarding erosion control peak runoff, and BMP maintenance. As part of these requirements, post-construction structural or treatment control BMPs designed to mitigate (infiltrate or treat) the volume of runoff produced from a 0.75-inch storm event prior to its discharge to a storm water conveyance system will also be implemented. Therefore, runoff contaminants generated by the operation of the PacifiCenter project will not violate any water quality standards or waste discharge requirements, impair the quality of receiving surface waters, impair the beneficial uses of the receiving waters, or otherwise substantially degrade water quality. Thus, impacts to surface water quality associated with operation of the project will be less than significant.

Groundwater

As indicated above, the proposed project will reduce polluted runoff in the area through the reduction of uses with the potential to generate larger amounts of pollutants as well as the introduction of a storm water treatment system that will incorporate SUSMP requirements. This reduction in pollutants will also reduce the associated potential from groundwater contamination through percolation. As such, operation of the proposed project will not degrade the groundwater quality to levels below standards considered acceptable by the LARWQCB or other regulatory agencies or impair the quality of receiving surface waters or groundwater.

Implementation of the PacifiCenter project will generate a demand for water that will include the use of existing City groundwater supplies, potentially including groundwater from the 10 active municipal groundwater wells located within a one-mile radius of the project site. However, as described in detail in Section V.M.1, Water, of this EIR, the City of Long Beach Water Department has prepared a water supply assessment for the project

that demonstrates that adequate water supplies exist to serve the project. In addition, project components will not involve the installation of groundwater production wells. Moreover, the reduction in impervious area when compared with historic and recent site conditions, described above, will increase the groundwater recharge potential from storm water infiltration. As such, the operation of the PacifiCenter project will not substantially deplete groundwater resources or interfere substantially with groundwater recharge such that there will be a net deficit in aquifer volume or a lowering of the local groundwater table level, and impacts would be less than significant.

3. CUMULATIVE IMPACTS

The geographic area for the cumulative analysis for surface water quality is defined as the 1,521-acre watershed area, as shown in Figure 46 on page 394 in Section V.F, Hydrology. Approximately seven related projects (Related Project Nos. 6, 12, 44, 50, 57, 61, and 75) are located within this watershed. As the watershed is almost entirely built out, new development will generally consist of the redevelopment of previously developed sites and will not substantially alter the runoff and pollutant loading characteristics of existing development. As with the proposed project, any future projects will be subject to NPDES permit requirements and LARWQCB regulations, and evaluated individually to determine appropriate measures to avoid impacts to surface water quality. With incorporation of the project features and compliance with all applicable federal, State, regional, and local regulations related to surface water quality that are described above, the PacifiCenter project will not contribute to cumulative surface water quality impacts.

For groundwater quality, the geographic area for the cumulative analysis is defined as the Central Groundwater Basin. This basin is primarily developed, and new development that may occur within the basin will not substantially alter the runoff and pollutant loading characteristics of existing development. In addition, groundwater remediation efforts, such as the ongoing soil and groundwater remediation program (Related Project No. 44) at the PacifiCenter site, that are planned or underway throughout the Basin will ultimately have a beneficial impact on groundwater quality by improving and enhancing water quality in order to achieve conformance with LARWQCB's requirements Further, as discussed in Section V.E, Hazards and Hazardous Materials, the PacifiCenter project's Risk Management Plan (RMP) will ensure the health and safety of the project's employees and residents, and will be designed to complement the ongoing remediation program.

Based on the above, implementation of the PacifiCenter project will not result in cumulatively significant impacts to groundwater resources since each new project will be

subject to federal, State, and local regulations applicable to groundwater, including the NPDES permit requirements and the LARWQCB regulations. Future projects will be evaluated individually to determine appropriate measures to avoid impacts to groundwater quality. With the incorporation of the project features and adherence to all applicable regulations associated with groundwater quality, the PacifiCenter project will not contribute to cumulative groundwater quality impacts.

4. MITIGATION MEASURES

The following mitigation measures are provided to ensure that construction and operation of the PacifiCenter project would comply with applicable water quality regulations:

V.G-1 In accordance with the federal NPDES program, construction of the PacifiCenter project shall comply with NPDES permit requirements for water discharged during mass grading and backbone infrastructure construction activities. As part of these requirements, a SWPPP and monitoring plan shall be developed and implemented that shall identify appropriate BMPs to reduce and/or to eliminate pollutant loadings to storm water runoff.

Monitoring Phase: Pre-Construction

Enforcement Agency: Regional Water Quality Control Board

Monitoring Agency: City of Long Beach Department of Public Works and City of Lakewood Department of Public Works

Action Indicating Compliance: Approval of Plans

V.G-2 The various separate development sites within the PacifiCenter property shall be required to secure a separate NPDES construction permit and prepare a site-specific SWPPP as they are developed. Each individual development shall provide storm water controls prior to issuance of a building permit by the appropriate department of the Cities of Long Beach and Lakewood. Development on sites that are greater than one acre shall file an approved SWPPP plan with the respective City and the LARWQCB.

Monitoring Phase: Pre-Construction

Enforcement Agency: Regional Water Quality Control Board

Monitoring Agency: City of Long Beach Department of Public Works and City of Lakewood Department of Public Works

Action Indicating Compliance: Approval of Plans

V.G-3 In accordance with RWQCB requirements and local regulations, a Standard Urban Storm Water Mitigation Plan (SUSMP) (or separate SUSMPs) shall be developed and implemented during the operational life of the project. The SUSMP requirements shall include post construction structural or treatment control BMPs designed to mitigate (infiltrate or treat) the volume of runoff produced from a 0.75-inch storm event prior to its discharge to a storm water conveyance system. Part of the SUSMP requirements to be implemented shall include provisions for storm drain stenciling and signage[199], the proper designation of outdoor material storage areas, and provisions for proof of ongoing BMP maintenance. For facilities located within the public right-of-way, a maintenance agreement between the applicant and the appropriate City shall be developed, and Covenants, Conditions, and Restrictions (CC&Rs) shall be developed for private water quality controls.

Monitoring Phase: Pre-Operation

Enforcement Agency: Regional Water Quality Control Board

Monitoring Agency: City of Long Beach Department of Public Works and City of Lakewood Department of Public Works

Action Indicating Compliance: Issuance of Certificates of Occupancy

5. SIGNIFICANCE AFTER MITIGATION

Implementation of the mitigation measures listed above will ensure the project will not degrade the surface water quality of receiving waters to levels below standards considered acceptable by the LARWQCB or other regulatory agencies, impair the beneficial uses of the receiving waters, violate any water quality standards or waste discharge requirements, degrade the groundwater quality to levels below standards considered acceptable by the LARWQCB or other regulatory agencies or substantially depletes groundwater supplies, or interfere substantially with groundwater recharge.

[199] *With regard stenciling, the City of Long Beach requires that the contractor/developer use the City's Standard Plan Non 636, "Catch Basin Stencil."*